# Video 80 micro magic 6

BEGINNER'S GUIDE TO BASIC

## SORTING SORTING SORTING

In this, the last of the 6-issue series of MICRO MAGIC, we will focus on the one thing that computers do best. That is sorting. Imagine the preparation of a Telephone Directory. Apart from the need for listing in alphabetical order, there is also the need for the facility of adding new subscribers and delete others. Can you imagine the frustration if each addition meant resorting the whole list. The subject of **SORTING** is dealt with in this issues Workshop Newsletter, Studio Ad Lib. The program here is not a sorting program in the usual sense. The items are in fact not sorted at all. We use a POINTER that keeps track of where the items of data are stored and presents them for printing in alphabetical order. The way in which the pointer can be altered enables the addition of new items and the erasure of old ones to be made without having to swap items around.

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## MICROSORT

```
20 PRINT#(A$)
POKE31470,218 <RETURN>
10 GOTO100
30 RETURN
```

The TOKEN being POKED into line 20 is **FRE**. FRE is the command that returns the remaining reserved string space. The number is printed on the MENU. You can use it to change the CLEAR and DIMs in line 100. The numbers are dependant on, not only the number of items, but the length of each item also.

```
40 'MICRO SORT FROM MICRO MAGIC - AUGUST 1986
50 'PRINT/LPRINT/SCROLL CAN BE PAUSED BY HOLDING DOWN THE SPACE KEY.
60 'UNDERLINE INDICATES INVERSE CHARACTERS.
70 'REMOVE ALL THESE REMS.

100 CLEAR3000:CLS:MS=100:DIMA$(MS),P(MS)COLOR2,1
110 S=1:P(S)=1:A(S)="ZZ"
120 CLS:PRINT@15,"MICROSORT":PRINT@111,"WRITE":PRINTTAB(15)"SCROLL"
130 PRINTTAB(15)"ERASE":PRINTTAB(15)"PRINT"
140 PRINTTAB(15)"TAPEFILE":PRINTTAB(15)"LOADFILE"
150 PRINTTAB(15)"RUN":PRINT:PRINTTAB(15)"ENTER INITIAL":PRINT
160 PRINTTAB(15)"MEMORY";:GOSUB20
170 PRINT:GOTO470

180 CLS'"ERASE DATA
190 INPUT"WHICH ITEM":W$
200 IFA$(S)=W$THENSS=S:S=P(S):P(SS)=0:GOTO120
210 I=S
220 IFP(I)=1THENPRINT"NOT FOUND":FORT=1TO2000:NEXT:GOTO120
230 IFA(P(I))=W$THEN250
240 I=P(I):GOTO220
250 P=P(I):P(I)=P(P(I)):P(P)=0:GOTO400

260 CLS:'"WRITE DATA
270 FORF=1TOMS
280 IFP(F)=0THEN310
290 NEXT
300 PRINT"SORRY - NO ROOM":FORT=1TO2000:NEXT:GOTO120
310 PRINT"ENTER ITEM":INPUTW$
320 A$(F)=W$
330 IFA$(S)<>""THENIFA$(S)<W$THEN350
340 P(F)=S:S=F:GOTO120
350 I=S
360 IFP(P(I))=0THEN390
370 IFA$(P(I))>W$THEN390
380 I=P(I):GOTO360
390 P(F)=P(I):P(I)=F:GOTO120
```

```
400 CLS'"PRINT OR SCROLL
410 I=S
420 IFP(F)=0THEN120
430 IFA$(I)="ZZ"THEN460
440 POKE30876,N:PRINTA$(I):SOUND0,5:GOSUB570
450 I=P(I):GOTO420
460 PRINT"■END■":PRINT:SOUND31,5:GOTO120
```

The POKE changes PRINT to LPRINT. The value of N is picked up in lines 510 and 520.

```
470 C$=INKEY$:C$=""
480 C$=INKEY$:IFC$=""THEN480
490 IFC$="E"THEN190
500 IFC$="W"THEN260
510 IFC$="S"THENN=0:GOTO400
520 IFC$="P"THENN=1:GOTO400
530 IFC$="R"THEN590
540 IFC$="T"THEN620
550 IFC$="L"THEN700
560 GOTO480
```

```
570 C$=INKEY$:C$=""
580 C$=INKEY$:IFC$=""THEN580ELSERETURN
```

This INKEY$ routine only stops if the SPACE key is pressed. It acts as a PAUSE while a list is being scrolled.

```
590 CLS:PRINT@99,"YOU HAVE SELECTED RUN WHICH"
600 PRINT"   WILL CLEAR ALL DATA. PLEASE    CONFIRM."
610 PRINT:INPUT"   RUN    MENU";C$:IFC$="M"THEN120ELSERUN
```

```
620 CLS:PRINT"■START TAPE■":SOUND15,9:PRINT"■■■GO!■■■"
630 I=S'"TAPEFILE
640 IFP(F)=0THEN120
650 PRINT#"",S,I,P(I),A$(I):PRINTA$(I)
660 IFI=1THEN120
670 I=P(I)
680 GOTO640
```

```
700 CLS'"RETRIEVE
710 PRINT@40,"■LOADFILE■":PRINT@72,"■RUN TAPE■"
720 I=S
730 INPUT#"",S,I,P(I),A$(I):PRINT@448,A$(I)
740 IFI=1THENF=1:PRINT@487,"■STOP TAPE■":GOTO120
750 I=P(I):GOTO730
```

This kind of listing is known as CHAINING. We call it the MICRO MAGIC SOFT.

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```
10 'OTHELLO'
20 GOTO 740
30 PRINT@394,"MY MOVE"
40 S=Z:T=X:H=0
50 FORA=2TO9:FORB=2TO9
60 IFA(A,B)<>46THEN210
70 Q=0
80 FORC=-1TO1:FORD=-1TO1
90 K=0:F=A:G=B
100 IFA(F+C,G+D)<>STHEN130
110 K=K+1:F=F+C:G=G+D
120 GOTO100
130 IFA(F+C,G+D)<>TTHEN150
140 Q=Q+K
150 NEXT:NEXT
160 IFA=2ORA=9ORB=2ORB=9THENQ=Q*2
170 IFA=3ORA=8ORB=3ORB=8THENQ=Q/2
180 IF(A=2ORA=9)AND(B=3ORB=8)THENQ=Q/2:GOTO190
185 IF(A=3 OR A=8)AND(B=2ORB=9)THENQ=Q/2
190 IF Q<H OR (RND(0)<.3 AND Q=H) THEN 210
200 H=Q:M=A:N=B
210 NEXT:NEXT
220 IFH=0ANDR=0THEN690
230 IFH=0THEN250
```

OTHELLO is a game played against the VeeZed. The computer starts, after a long pause, by printing an X so that any of your Os which are trapped between two Xs turn into Os. Then it's your turn to try and change the VeeZed's Xs into Os by trapping them between two of your Os. The winner is the one with the most Os or Xs.

```
240 GOSUB580
250 GOSUB370
255 PRINT@394,"        "'(6 SPACES)
260 PRINT@388,"ENTER YOUR MOVE";
270 INPUTR
275 PRINT@388, "                    "'(19 SPACES)
280 S=X:T=Z
290 IFR=0THEN350
300 IFR<11ORR>88THEN260
310 R=R+11
320 M=INT(R/10)
330 N=R-10*M
340 GOSUB580
350 GOSUB370
360 GOTO30
```

```
370 'PRINT BOARD * * * *
380 C=0:H=0
390 SOUNDRND(0)*30,1
395 SOUNDRND(0)*30,1
400 PRINT@32,"    1 2 3 4 5 6 7 8"'(4 SPACES BEFORE 1)
450 FORB=2TO9:PRINTB-1;" ";
460 FORD=2TO9
470 PRINTCHR$(A(B,D));" ";
480 IFA(B,D)=XTHENC=C+1
490 IFA(B,D)=ZTHENH=H+1
500 NEXT
510 PRINTB-1
520 NEXT
530 PRINT"    1 2 3 4 5 6 7 8"
540 PRINT
550 PRINT@451,"COMPUTER "C;"    HUMAN "H
570 RETURN
580 FORC=-1TO1:FORD=-1TO1
590 F=M:G=N
```

OTHELLO

```
600 IFA(F+C,G+D)<>STHEN630
610 F=F+C:G=G+D
620 GOTO600
630 IFA(F+C,G+D)<>TTHEN670
640 A(F,G)=T
650 IFM=FANDN=GTHEN670
660 F=F-C:G=G-D:GOTO640
670 NEXT:NEXT
680 RETURN
690 GOSUB 370
700 CLS:IFC>HTHENPRINT@230,"I'M THE CHAMP!"
710 CLS:IFH>CTHENPRINT@230,"YOU'RE THE CHAMP"
720 CLS:IFH=CTHENPRINT@230,"IT'S A DRAW"
730 END
740 CLS:PRINT@87,"OTHELLO"
750 X=88:Z=48
760 DIMA(10,10)
770 FORB=1TO10:FORC=1TO10
780 IFB<>1ANDC<>1ANDB<>10ANDC<>10THENA(B,C)=46
790 NEXT:NEXT
800 A(5,5)=X:A(6,6)=X
810 A(6,5)=Z:A(5,6)=Z
820 P=0
830 GOSUB370
840 GOTO30
```

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For awhile we thought we'd never reach the end of the six MICRO MAGICs. It was the Studio Ad Libs that burned the midnight oil. What now? Well, that really depends on you. Studio Ad Lib will continue as the Newsletter of the club and further items of information and ideas will be sent from time to time to those who are interested. Most welcome are the programs you have written yourself. Hope you'll keep in touch.

For those who wish to progress into the field of Machine Code programming, and those who want to add Disk Drive, there is a club which we recommend. Drop a line to Mr John D'Alton, 39 Agnes Street, TOOWONG, Qld. 4066. He is well able to supply you with Utility programs that make best use of Disk.

Hoping you benefitted from MICRO MAGIC, best wished and....
KEEP THAT BEEPER GOING!!!

GORDON